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Amendments to the Specification

Please replace paragraph [0033] with the following amended paragraph:

[0033] FIG. 2 describes the handling and processing of the measured values (intensity) obtained from the multiple detectors 36, 37, and 38. Only two detectors 36[[, 37,]] and [[38]] 37 are depicted in FIG. 1, but it is self-evident that the number of detectors can also be greater than two. In FIG. 2, three detectors are shown merely by way of example. It is, however, self-evident that the number can also be greater. In this exemplary embodiment, detectors 36, 37, and 38 are depicted as photomultiplier tubes (PMTs). For the evaluation of local correlations, the measured values from the PMTs are delivered to an electronic device 45 that performs the corresponding evaluation as described below. Downstream from device 45 is a means 46 for selecting a subset from the plurality of recorded spectra. The selected spectra are delivered to computer system 23. Computer system 23 is connected, for example, to SP module 20. On the basis of the transmitted spectral representations, SP module 20 ascertains the crosstalk and performs an automatic adjustment with which the crosstalk of the individual detection channels is minimized, or visualizes them using the method described below.

Please replace paragraph [0042] with the following amended paragraph:

[0042] in which [[ε(t)]] γ(t) is a learning rate that is often reduced over the operating duration of the vector quantizer. At a constant learning rate, the vector quantizer remains adaptive; if a learning rate inversely proportional to the number of wins is used, the result is the so-called "k means" method, which places itself exactly in the means of the distribution. Any desired intermediate states can be produced by selecting exponentially decreasing learning rates; or other variants can be applied.

Please replace paragraph [0045] with the following amended paragraph:

[0045] In the "self-organizing feature map" expression, a topology is overlaid on the code book vectors. During the learning process, a neighborhood around the winner is always adapted along with it: as a rule, closer neighbors are adapted more and more-distant neighbors less, and the influence of neighborhood learning is reduced over time. This is comparable to an X-dimensional rubber sheet that is creased ~~into the distribution~~ and spread without tearing. The advantage of this method is that topological properties are retained.

Please replace paragraphs [0048]-[0049] with the following amended paragraph:

[0048] FIG. 5 shows four dye spectra measured in a specimen 15. A first dye spectrum 60, a second dye spectrum 61, a third dye spectrum 62, and fourth dye spectrum 63 form the vertices of a polygon in the projected hyperspace. A (P-1)-dimensional vector space can be generated using the transformation described above. In this vector space, the depiction can be described in idealized fashion in order to arrive at a protocol for identification of the dyes in the dyes contained in the sample to be examined. In FIG. 6, connections 64 on which potential mixed states can lie are drawn between the individual points of the polygon. FIG. 7 shows the superimposed point clouds of the measured spectra 60a, 61a, 62a, 63a, and 66a, the point clouds being depicted here by ellipses. A comparison of FIG. 6 and FIG. 7 indicates the principle of the proposed method: the pattern of point clouds must be congruent with the pattern determined theoretically from the reference spectra. From the congruence, or the deviations from congruence, conclusions can be generated regarding the dyes and their mixed states. For example, a comparison of point clouds 60a and ~~61a(FIG. 7)~~ 61a (FIG. 7) with reference positions 60 and 61 very strongly suggests the conclusion that ~~60ais~~ 60a is dye 60 and 61 a is dye 61. It can also be deduced, from the shape of point cloud ~~61awhich~~ 61a which approximates an ellipse, that there may be an interaction with other dyes, since an oblique main axis appears to have components of 60 and 63. The interpretation of this is, nevertheless, not clear. Point cloud 66a, however, can be unequivocally classified as a mixed state between

60 and 61, since the point cloud lies unequivocally on the connecting line between the dye spectra. We need the representation creation performed in processing unit 46 in order to be able to perform this kind of classification systematically.

[0049] FIG. 8 schematically describes the use of the depiction from FIG. 7 to identify the dyes based on the five measured spectra 60a, 61a, 62a, 63a, and 66a. L dye spectra 60b, 61b, 62b, and 66b are stored with sufficient accuracy in a database of the memory of the computer system. This graphic illustrates in integrated fashion the explanation that was given above with reference to FIGS. 6 and 7. The transformation described above is applied to the spectral pixels of the five measured spectra 60a, 61a, 62a, 63a, and ~~66aand~~ 66a and to all the discrete dye spectra 60b, 61b, 62b, 63b, and 66b of the database present in the database, after adaptation to the spectral scan grid. Lines 75 drawn in FIG. 8 characterize a first region 70, a second region 71, a third region 72, and a fourth region 73 in the hyperspace, which are allocated to a specific dye. These separating planes in the feature space (Voronoi tesselation) are obtained by simply applying a "nearest-neighbor" classification to each point of the feature space. One possible evaluation is obtained by pixel-by-pixel assignment of a spectrum to the pertinent surface which, together with a suitable color decoding, represents a dye map in the form of an image. The user can also be informed textually on display 27, or by voice output, as to which dyes are present in the sample.